8th Annual Cost Schedule Performance Management Conference

October 20-24, 1996, Tysons Corner, Virginia

REPORT DOCUMENTATION PAGE

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OUSD(A&T) Initiatives Update

Wayne Abba

8th Annual International Cost Schedule Performance Management Conference

October 27, 1996

OSD Initiatives

- MIL-HDBK-881 “Work Breakdown Structures Handbook”
- Electronic Data Interchange
- Contractor Cost Data Reporting
- Project Management Tools
- Earned Value Ownership
  - » Department of Defense
  - » Industry

MIL-HDBK-881: Background

- Specs & Stds cancelled June 1994
- Defense Stds Improvement Council- December 1994
  - » Approved retaining MIL-STD-881B
  - » Until replaced by a guidance document
- Support contractor named in 1995

MIL-HDBK-881: Status

- Cited in DoD Regulation 5000.2-R
  - » “Bridge Policy” in Deskbook
  - » MIL-STD-881B remains in effect
- September 1996 Handbook Draft
  - » Mandatory for Program WBS
  - » Guidance for Contract WBS
- Coordinate in near future

Electronic Data Interchange: Background

- EDI is Federal Government policy
- Implications seen by DoD in late 80's
  - » Worked with NSIA
  - » Formed working group
  - » Incorporated in Performance Analyzer
  - » USD(A&T) Policy Memo Jan. 95
    - – Mandatory for new contracts (CPR or C/SSR)
    - – Incorporated in Data Item Descriptions

Electronic Data Interchange: Status

- Successful early implementation
  - » Shipyards
  - » V-22 at Boeing Helicopters
  - » Encourage contractor participation
- Implementation Conventions
  - » 839 (Cost), 806 (Schedule), 196 (CCDR)
- “Getting Started” Handbook issued

Contractor Cost Data Reporting: Background

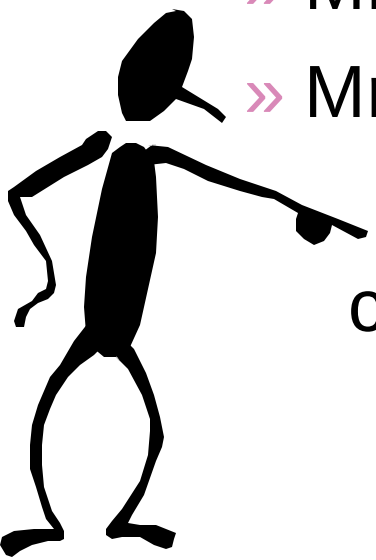
- CCDRs a problem-
  - 1991 DoD/Industry TQM Report
  - DoDIG Report
  - 1991-94 OSD RFP reviews
- Excessive WBS definition
  - “WBS vs. IPT”
- Too many reports, too much detail

Contractor Cost Data Reporting: Status

- Study by Institute for Defense Analyses
- Requirement reaffirmed after review
  - » USD(A&T), SAEs, DUSD(AR), D(PA&E)
- USD(A&T) Policy Memo Jan. 18, 1996
  - » Fewer reports in less detail and less often
  - » Central office for oversight
  - » IPTs involve contractors when appropriate

Contractor Cost Data Reporting: Status Cont'd

- OSD PA&E "high priority;" encourages inquiries from anyone
- Points of contact-
  - Mr. Gary Bliss (703) 695-4348
  - Mr. Tom Coonce (703) 697-0374



cooncet@paesmtp.pae.osd.mil

Project Management Tools

- Risk management
  - » IDA study--Risk Analysis & Cost Mgmt.
- NAVAIR initiatives
  - » PEO(A) and PEO(T)
  - » In-house Earned Value
  - » IBR process
  - » Integrated Technical Performance
- Performance Analyzer & COTS software

DoD Earned Value Ownership: Background

- Briefed Mr. Longuemare January 1994
- SAE meeting September 1994
- Executive Steering Group named
- Dr. Kaminski letters January 1995
  - Support 1993 “Model Program” initiative
  - SAEs: Take ownership
  - Industry: Accept responsibility
  - DoD: Encourage value-added changes

DoD Earned Value Ownership: Background Cont'd

- C/SCSC reaffirmed
  - » USD(A&T): "Tool of choice" Oct. 1995
  - » DoD 5000.2-R issued March 15, 1996
- USD(A&T) Dec. 1995 Memorandum
  - » Change C/SCSC implementation structure from PMJEG to DCMC Executive
    - – Simplify review & acceptance process
    - – Encourage responsible, timely innovation

DoD Earned Value Ownership: Status

- SAEs took ownership in 1994
- June 1996 SAE meeting with USD(A&T)
  - » Strongly endorsed reforms, especially the Integrated Baseline Review process
  - » Air Force proposed assigning C/SCSC "compliance responsibility" to DCMC
  - » DCMC agreed to accept responsibility

DoD Earned Value Ownership: Status Cont'd

- 3 alternatives offered to USD(A&T):
  - (1) Transfer compliance and 1 billet per Service
  - (2) Transfer compliance without billets; API to provide for budget adjustments
  - (3) Do not transfer compliance
- All Services concurred with Alt. 2
- USD(A&T) signed Memo Oct. 1, 1996

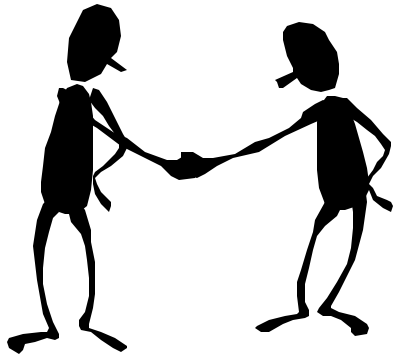
Compliance Responsibility Memorandum

- DCMC assume responsibility as soon as possible, not later than end FY 1997
- Dir, API take necessary budget actions
- Emphasize data integrity for PMs
- Applies to C/SCSC compliance reviews
  - » Not to IBRs and related PM support
  - » Components implement earned value
  - » DCMC improve support to program offices

Whose Idea Was This?

- The idea is not new-
  - » Recommended by DoDIG in 1993 report
  - » OSD did not agree
  - » DoDIG agreed to forbear
- So why is it OK now?
  - » Earned Value accepted throughout DoD
  - » DCMC ready to take it on
    - – “Center of Excellence”

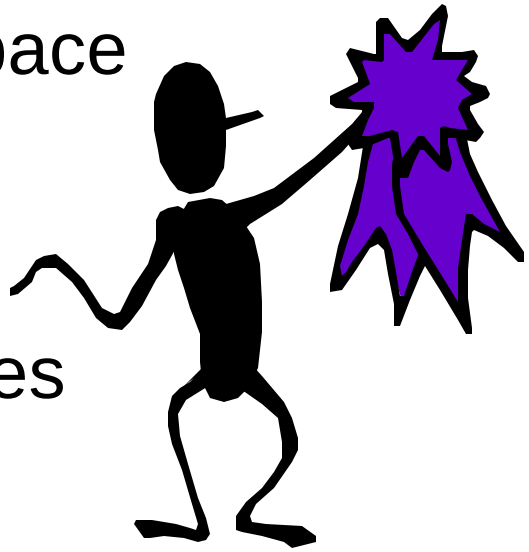
Industry Earned Value Ownership: Background



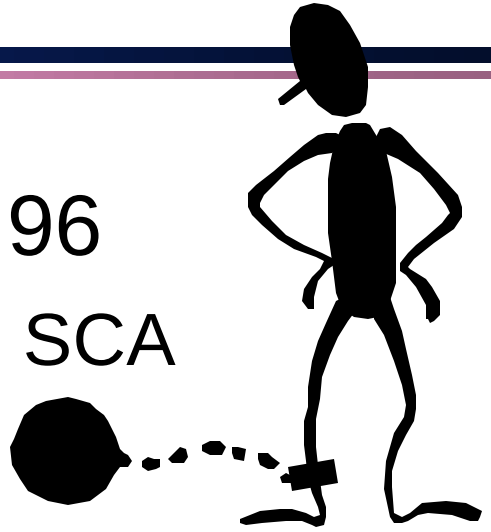
- Long history with NSIA
  - » ADL Study
  - » TQM Study
- Mr. Longuemare Sep. 94 letter to NSIA
  - » Offered partnership for industry standard
  - » Possible ISO 9000 approach
- 1st meeting in Phoenix, April 18, 1995

Industry Earned Value Ownership: Status

- Industry accepting responsibility
  - Boeing Defense & Space Group
  - Lockheed Martin Missiles & Space
  - McDonnell Douglas
  - Northrop Grumman
  - General Electric Aircraft Engines
  - and many more...



Industry Earned Value Ownership: Status



- Industry standard issued Aug. 96
  - » Signed by AIA, EIA, NSIA, ASA, SCA
- Ball *belongs to industry*
  - » DoD will borrow it for 5000.2-R
- OSD role is to protect public interest
  - » 5000.2-R, DFARS clauses, guidance being revised
  - » Workshops to identify & address issues

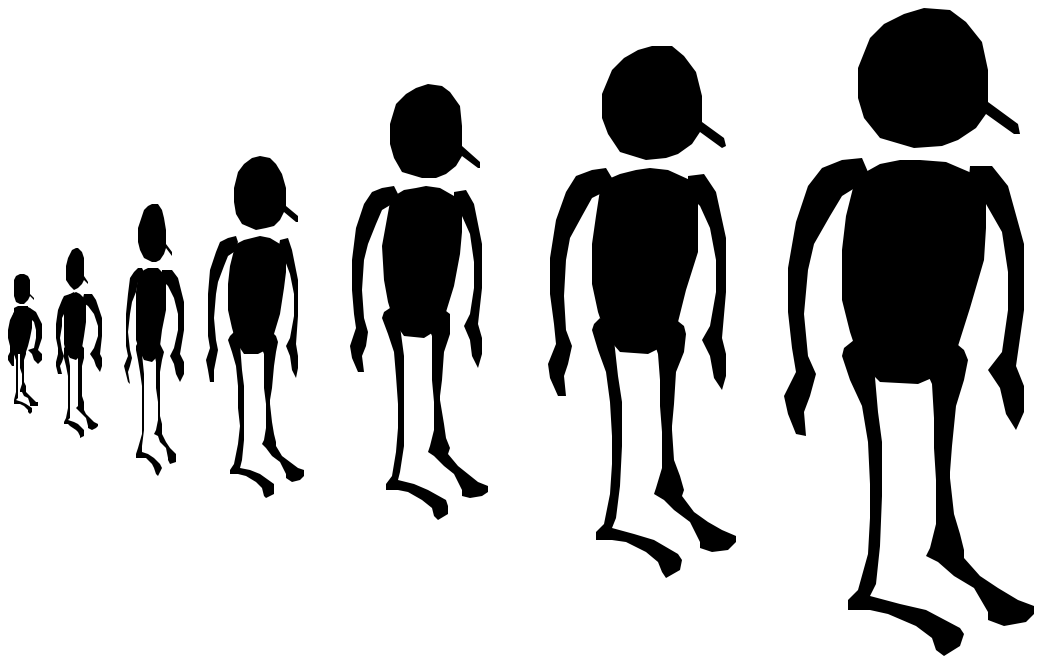
DRAFT Policy Memorandum

- Adopts 32 EVMS guidelines as immediate replacement for 35 C/SCSC
  - » New 5000.2-R baseline requirement
- Reserves right for appropriate reviews
  - » As determined by DCMC and/or DoD PM
  - » Does not accept self-certification
- Encourages evolution to “true” standard
  - » Industry (ANSI) and/or International (ISO)

Evolution of EVMS

INDUSTRY/ INTERNATIONAL

DOD CONTRACTS



EVMS INDUSTRY STANDARD

MODEL PROGRAM VISION

C/SCSC (COMPTROLLER)	C/SCSC (PROGRAM MANAGEMENT) EVMS

1967 **1989** **1993** **1996**

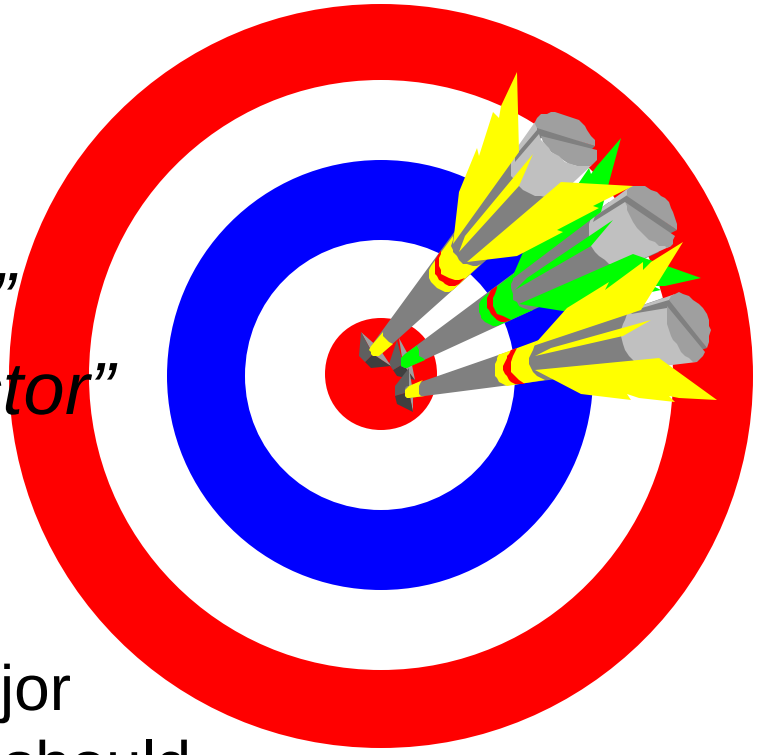
Conceptual Models

- Reconciling government and commercial practices
- “Who certifies?”

Government / Commercial Practices

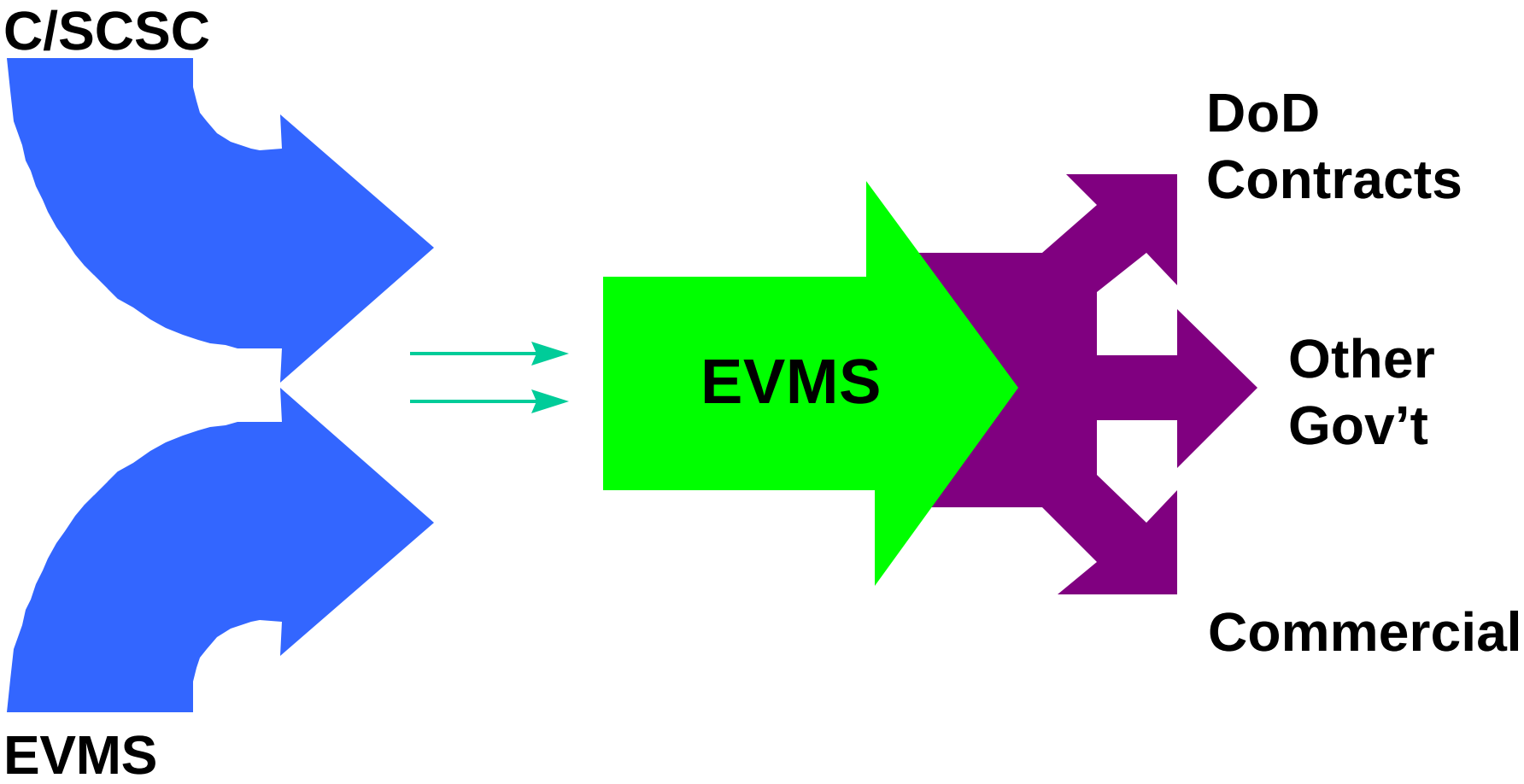
3 LEVELS:

- *"Core"*
- *"Enterprise"*
- *"Public Sector"*



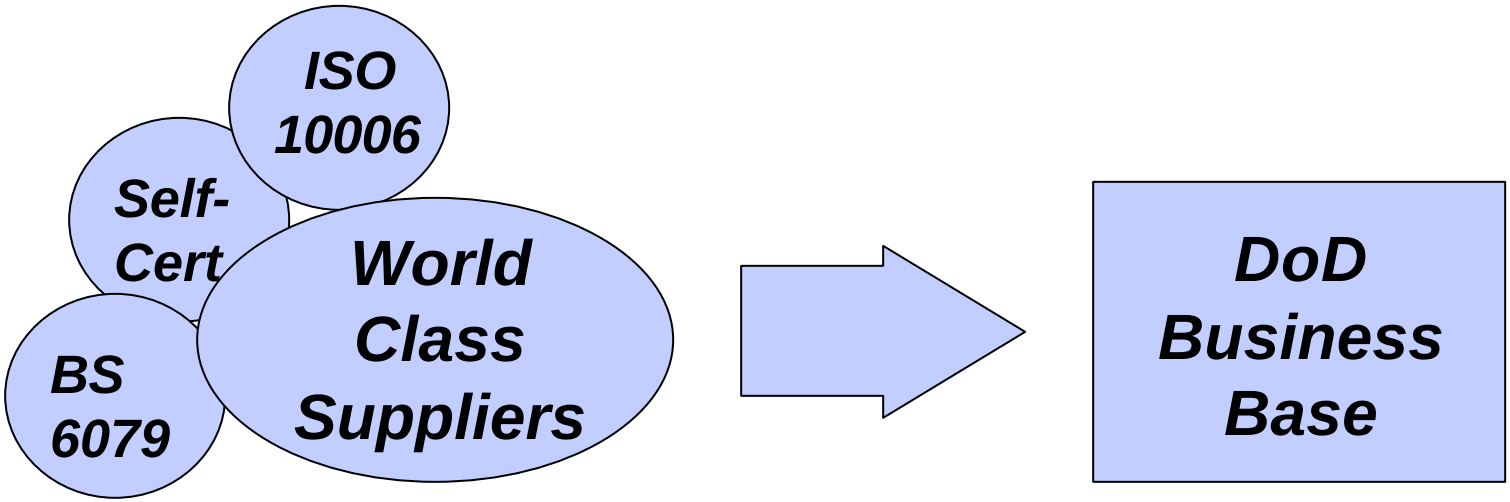
"Industry Standard Guidelines for EVMS" suggests there are no major differences in the ***principles*** that should be used for management of complex projects in government and industry. We should shift our attention to the ***practices***.

Reconciled Practices



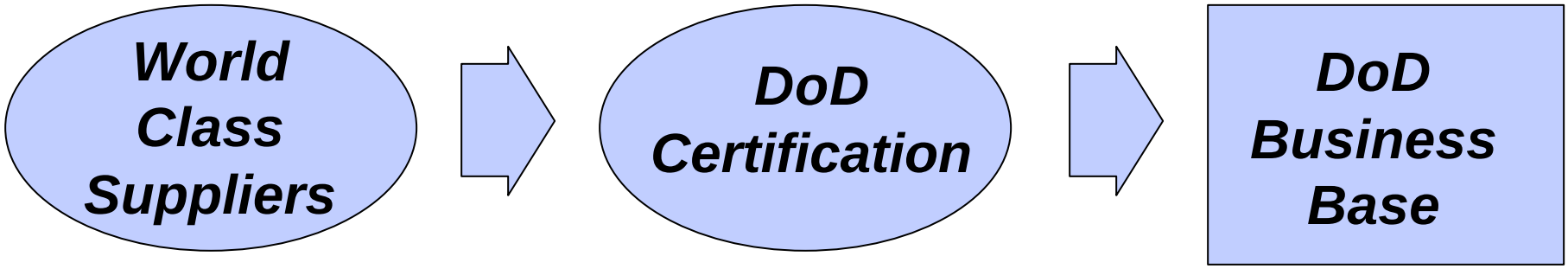
Who Certifies?
3 Possible Scenarios

1) Rely on 3rd party and/or industry certification



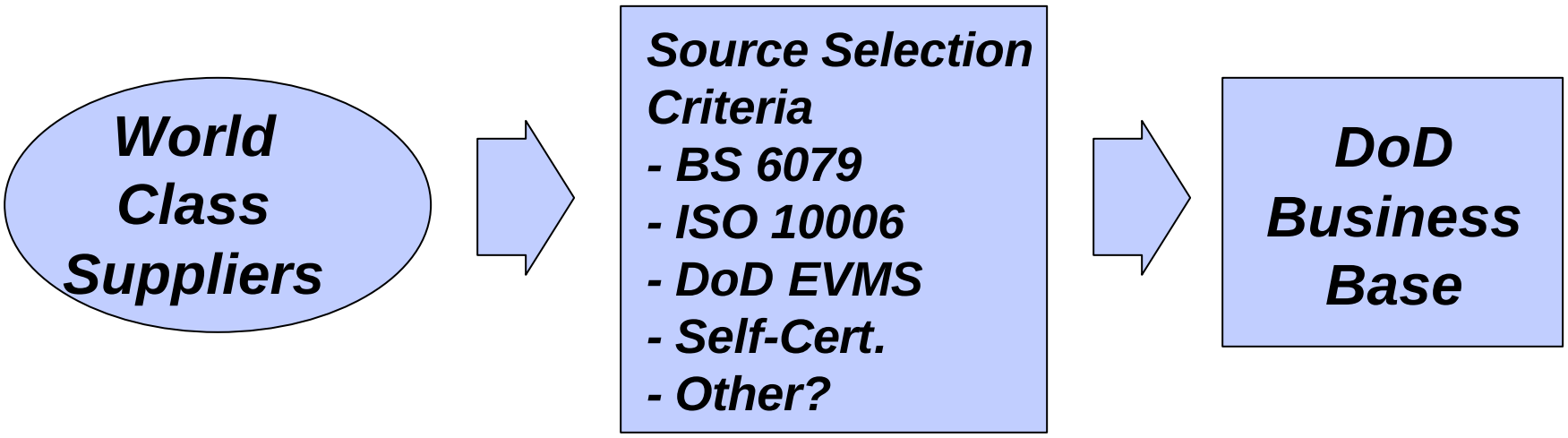
Who Certifies?
3 Possible Scenarios--Cont'd

2) Grant DoD Certification (Status quo)



Who Certifies?
3 Possible Scenarios--Cont'd

3) Include 3rd party, industry, and/or DoD EVMS at time of each acquisition



“You hold the key…”

Reaching New Dimensions In Performance Management

Where Are We Going?
How Do We Get There?

DoD Integrated Program Management Initiative

Executive Steering Group

October 28, 1996

R.I.P.
R.I.P.
C/SCSC IS DEAD

Long Live

Transfer of Compliance Responsibility for C/SCSC

- **SAE/DAE meeting June 11,1996**
  - Integrated Program Management Initiative
- **Growing acceptance of earned value**
  - Declining review activity
    - Need to ensure a minimal core of expertise
- **Approved October 1, 1996**
  - Effective ASAP
  - NLT September 30, 1997

Transfer of Compliance Responsibility for C/SCSC

- **Each Component required to:**
  - Implement earned value effectively on contracts;
  - Ensure management systems reviews are requested when necessary;
  - Ensure DCMC is supported with appropriate program office and functional personnel when reviews are required.

Industry Standard Guidelines for Earned Value Management Systems (EVMS)

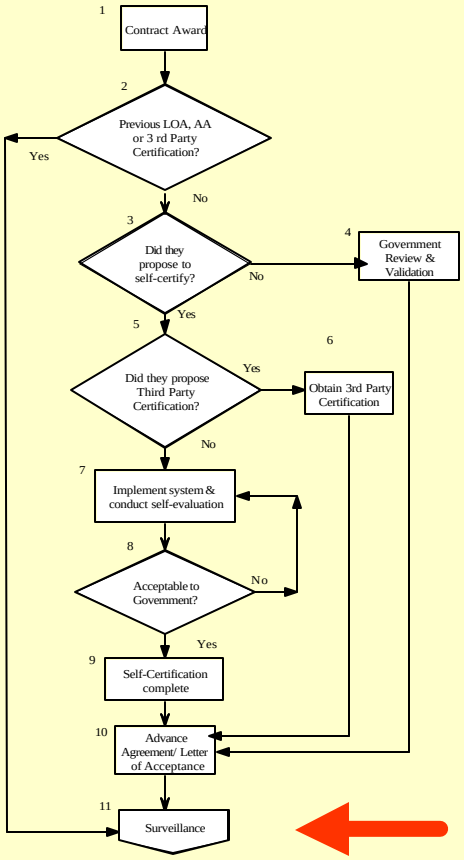
- **DoD Requests Industry to develop standard, September 1994**
  - ISO 9000 “Model”
- **Industry responded with EVMS “Guidelines,” August 19, 1996**
  - NSIA, AIA, EIA, SCA, ASA

Industry Standard Guidelines for Earned Value Management Systems (EVMS)

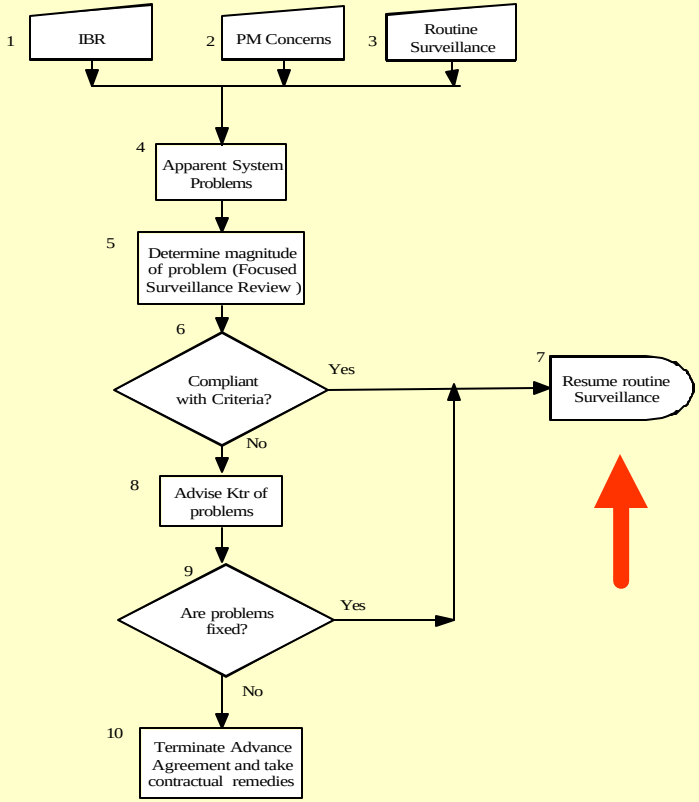
- **Proposed DoD response:**
  - Adopt EVMS guidelines as replacement for C/SCSC;
  - "Self certification" not acceptable;
    - Reserve the right to review "for cause"
      - Break the ***direct*** link between contract award and reviews;
      - Joint surveillance;
      - Focus on specific identified deficiencies
  - Continue evolution toward a true "standard."
    - ANSI, ISO, etc.
    - Big world: BS 6079; ISO 10006

The Proposed Processes

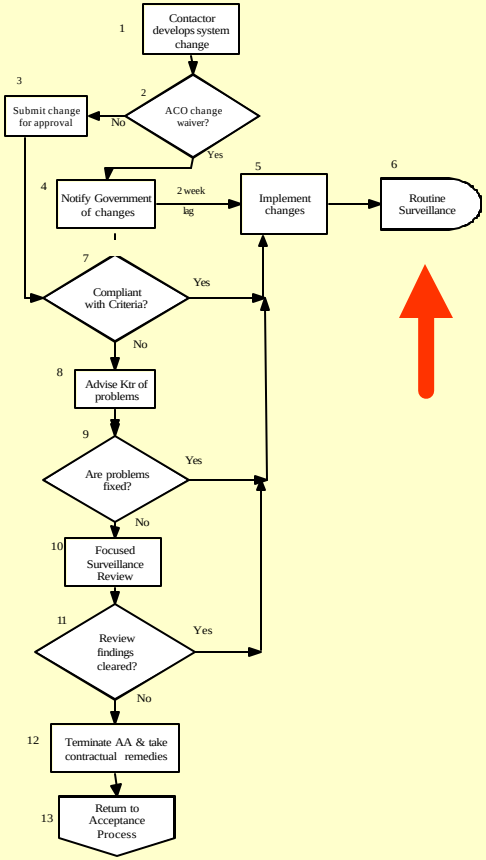
AWARD



SURVEILLANCE



CHANGES



System Reviews

- **For contractors with current Letter of Acceptance, Advance Agreement, or "3rd party" certification, only two ways to trigger a review:**
  - Surveillance
    - IBR
    - PM
    - Plant rep
  - System change
- **Today's process OR the proposed process!!**

So What is the Big Problem?

- Contract clause requires prior approval of system changes!
- Proposed process allows ACO waiver of prior approval.

Work Shop Focus

- The surveillance process.
- Considerations in determining waiver of prior change approval.
  - If EVMS is a real “standard,” it should be plant-wide.

USD(A&T) Direction

July 9, 1996

- **Expand Integrated Project Management Initiative Executive Steering Group to include other Defense and non-Defense agencies;**
- **Establish metrics;**
- **Priority emphasis on EDI to include relationship to CALS/CITIS; implications of “on-line” access;**
- **Develop and implement a plan of action that will lead to the availability of tools to better integrate cost, schedule, technical performance, and risk management.**

LMMS

Earned Value Management

8th Annual International Cost/Schedule Performance Conference

27-31 October 1996

Lockheed Executive Commitment

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"The use of earned value management process . . . even where no contractual requirement exists. I intend to expand this practice and to make earned value the basis for management of all our efforts."

"Our programs must continue to improve their performance management practices and skills and we must intensify efforts to eliminate activities that do not add value to the program management process."

Sam Araki

Lockheed Martin Missiles & Space

EVM Initiative

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August, 1995 Sam Araki formed the EVM Task Force with the following objective:

Extend to all enterprise activities a **cost effective,** earned value system that satisfies **minimal requirements** consistent with prudent business practice and essential to both the **intent of C/SCSC** and best **commercial practice**

OSD Commitment

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Unprecedented Support

"Task Force activities will not prejudice recognition by the Department of Defense of the Lockheed Martin Sunnyvale Performance management System as compliant with Cost/Schedule Control Systems Criteria (C/SCSC)."

"The commendable initiative shown by Lockheed Martin, Sunnyvale and by DPRO is consistent with the objectives of Acquisition Reform, and provides an opportunity to minimize or eliminate differences between military and commercial management requirements."

Dr. P. G. Kaminski,
Under Secretary of Defense,
(Acquisition and Technology)

EVM Task Force

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- LMMS and DCMC Exec. Mgmt

Steering Committee

LMMS Office of the President
DCMC Commander

- Business, DCMC, and Program Senior Mgmt

Exec. Task Force

Key Program Vice Presidents
Division Directors of Business Ops
DCMC Deputy Commander

- Cross Functional Team

Implementation Team

Task Force Manager
DCMC C/SCSC Focal Point
Program Reps
Process Reps
Information Systems Reps
Functional Reps

DCMC's Epectations

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- Government and company program manager ownership of EVM
- Standardization of EVM process across the enterprise
- Cost effective and meaningful joint surveillance
- Eliminate non-value-added activities associated with EVM

Perform a Requirement Analysis

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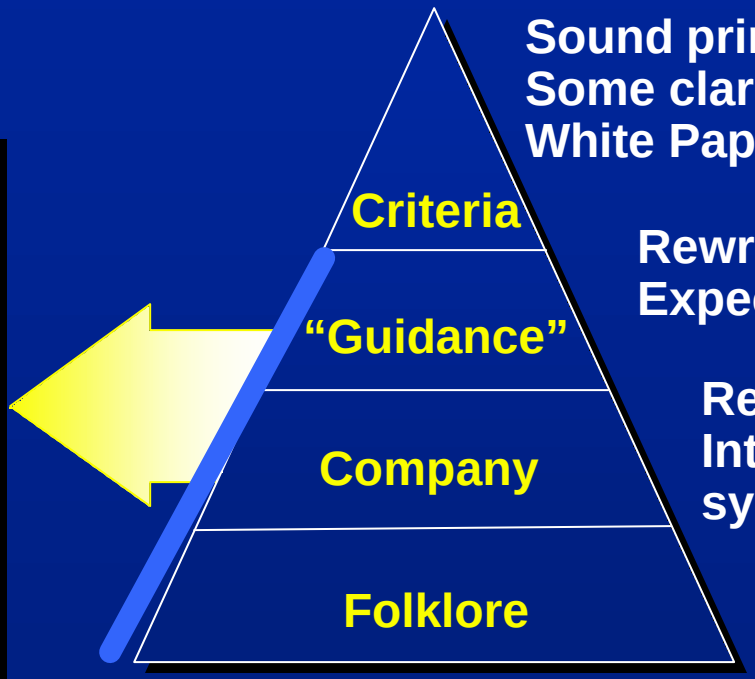
Top Down



Sound principles
Some clarification and redundancy
White Paper

Rewrite I/P
Expected outcome good

Rewrite for all programs
Integrate with other systems - WEB

Get the message out, retrain!!!

- Professional interpreters developed
- Lack of real "user" involvement
- Mistakes generated rules

Identify and remove impediments

Pilot Program

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Benchmark - IRIDIUM®

Pilot - Milstar

Best-Demonstrated Practices

Program Implementations

Process Change Flow

EVM Change Status

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Process Change Candidates

- EAC Triggers
- Variance Analysis
- Work Authorization
- Baseline Management
- Consistent OBS/WBS
- Level of CAM
- Business Support Role
- EV Technique
- Streamlined Material EV
- Use of Metrics
- Meetings/Information
- COTS
- Surveillance
- EDI

Process changes resulted from commercial benchmarking and best demonstrated practices

Eliminate Non-Value-Added Activity

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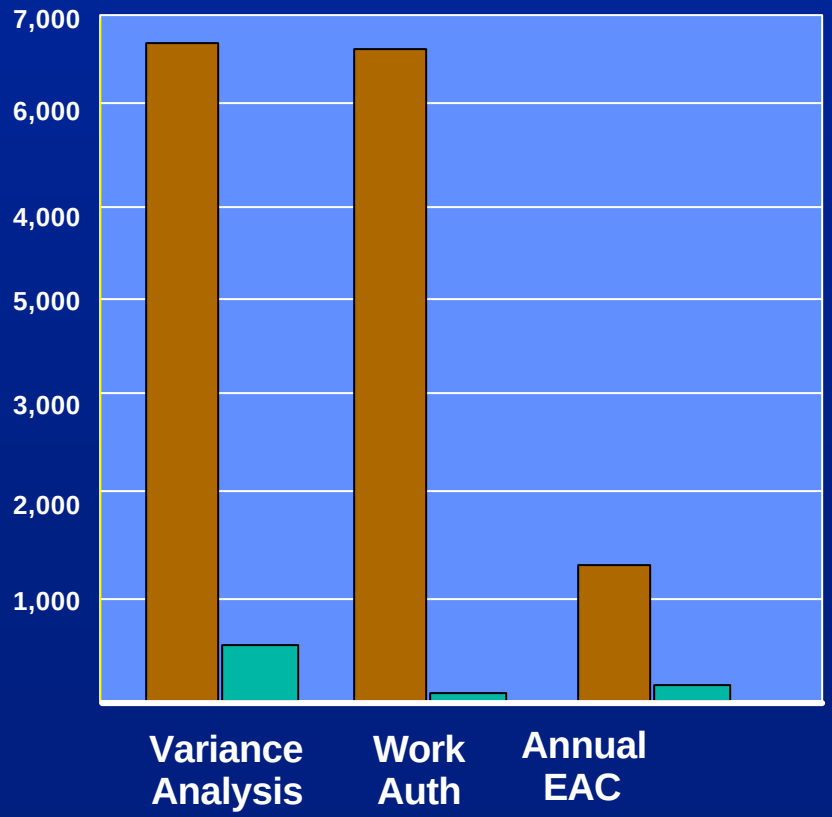
Annual estimated unique pieces of paper generated before and after process change for single program



Coopers & Lybrand Study

- C/SCSC 3rd-highest regulatory cost driver
- Two-thirds effort associated with pushing paper

Use the "Real Info"

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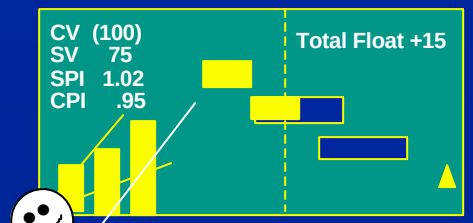
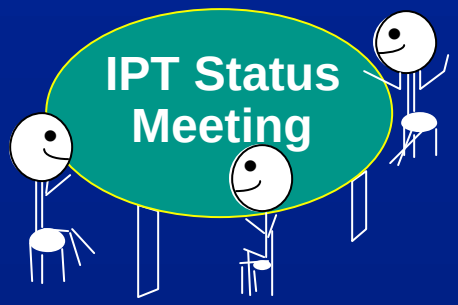
LMMS Action

- Eliminate cost account variance reports
- Develop standard status review charts for teams with graphics
- Encourage customer participation on IPTs





Capitalize on internal program management process

The Value of Judgment

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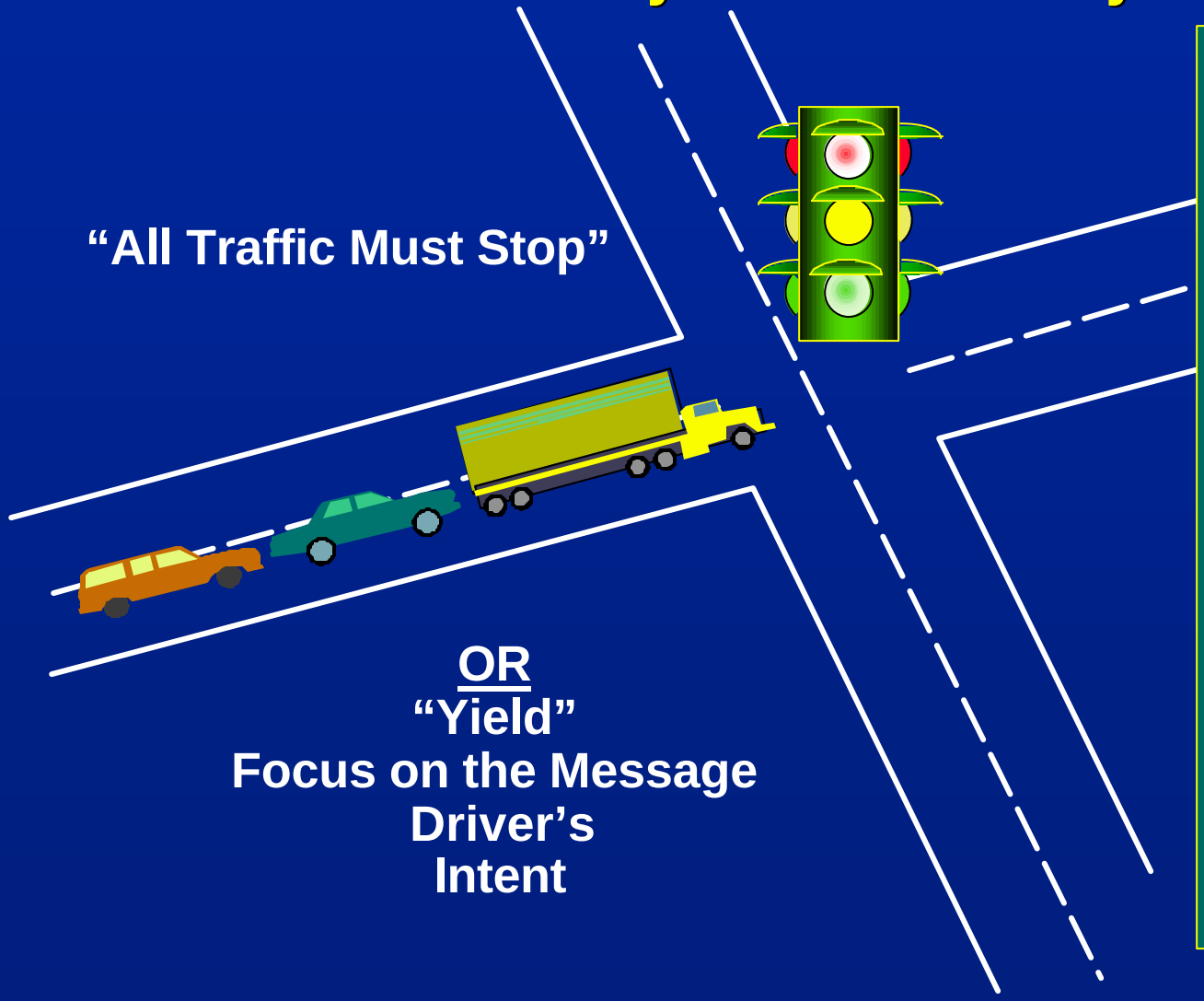
Substitute Analysis For Arbitrary Rules



"All Traffic Must Stop"

OR

"Yield"

Focus on the Message

Driver's Intent

LMMS Actions

- EAC triggers
  - SPI
  - CPI
  - TCPI
  - Risk
- Replace thresholds with significant indicators
  - Risk Areas
  - PDT Concerns
  - WBS
- Use analysis realtime

Develop a Quality Assurance Program

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"Contractor Ownership Includes Methods to Evaluate and Ensure the Quality of the EVM System"

Monitor

- **Product** →
  - Data reviewed by senior management
  - CPR data analysis
  - Independent EAC analysis
  - Program reviews
- **Process** →
  - Statistical process control approach
  - Use diagnostics and metrics
  - Program take responsibility for generation and response

Key Features

- Non-interface
- Look for trends and significant discrepancies
- Replace CAM Interviews with "training" where indicators exist
- Focus includes value of information provided

Teamed for the Future

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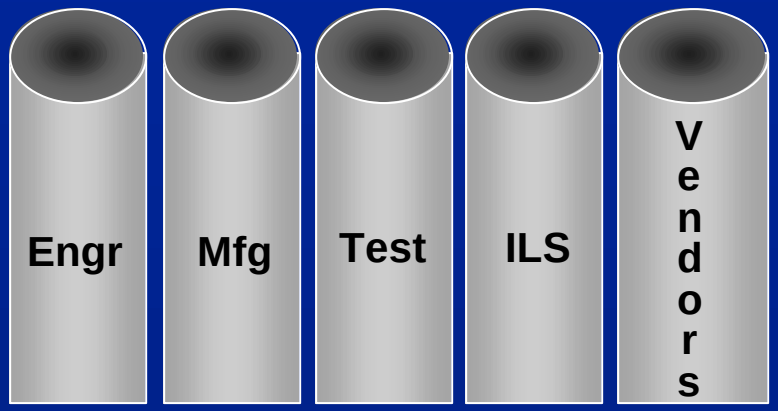
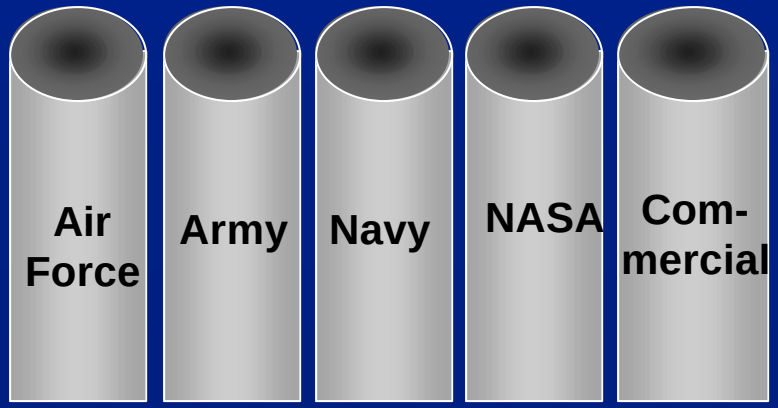
Must Break Down Stovepipes for Common Processes



Integrated Product Teams

- Adopted Throughout LMMS
- Corporate Handbook



Single Processes

- Working w/ Gov't & Industry
- DCMC Key

Combine Surveillance Needs

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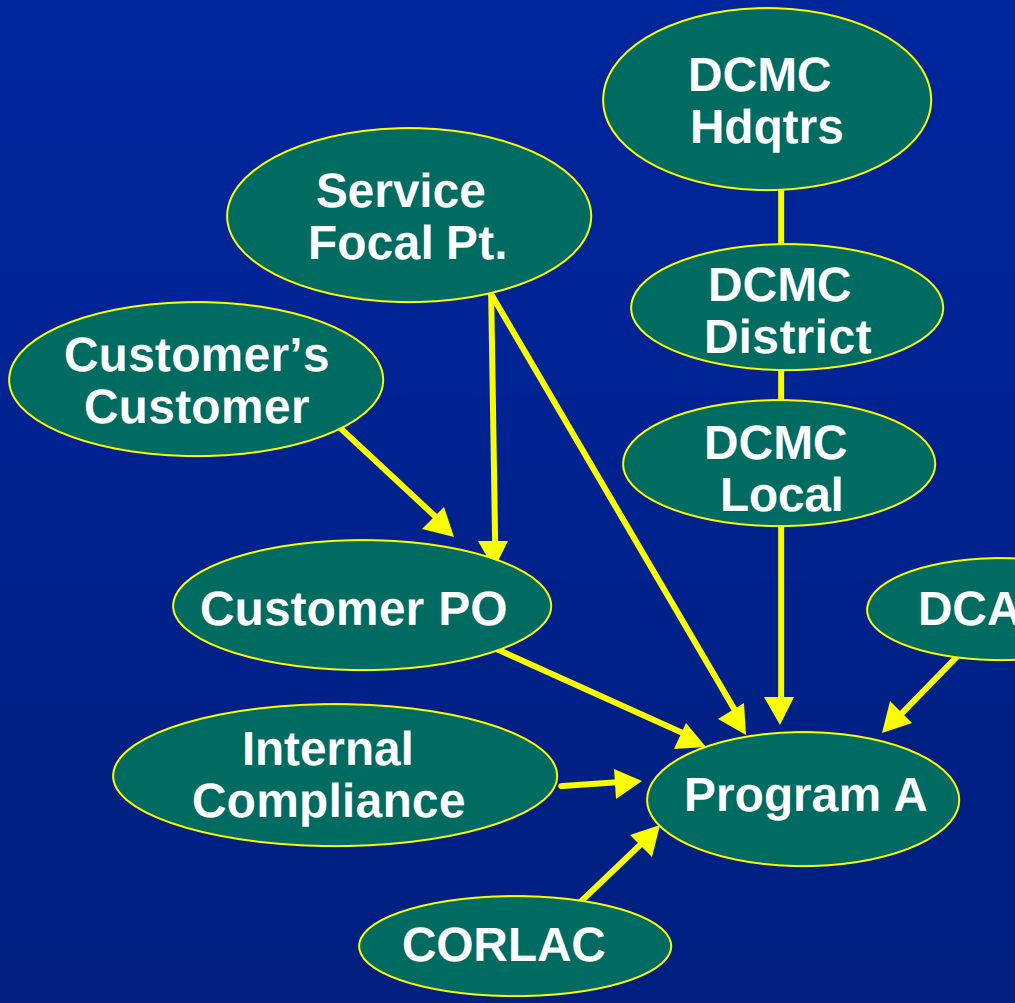

Teaming Approach to Ongoing Surveillance

Joint Surveillance Team

Customer PO

DCAA

DCMC Local

Internal Compliance

Program A

Benefits to the Government

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- **Public funds are at risk on large cost based contracts – a joint Program Office, DCMC, & LMMS process will exist to manage resources wisely**
- **Atmosphere created that capitalizes strengths of participants in surveillance process to develop programs with opportunity of success**
- **Environment fosters active and constructive participation of DCMC, DCAA, and Program Offices with LMMS to develop a sound earned value management strategy**

Potentially adversarial relationships transformed into productive partnership – renewed emphasis placed on importance of cross-functional teaming

Contractor Benefits

LMMS

- The integration of system surveillance, data surveillance and program surveillance
- Focus on quality and utility of reports
- Tailor processes to the way the contractor naturally manages
- Focus on prevention of management system deficiencies rather than “find and fix”
- Conduct government reviews only when surveillance and reporting indicate system integration and discipline deficiencies are distorting the presentation of program status

Joint Benefits

LMMS

- Early teaming yielded end-game success
- Developed mutual respect for government/contractor perspectives
- Both parties feel positive about eliminating non-value added activitiy
- Mutually able to attack real issues – avoided “Committee Fluff”

Gain of Company ownership is a win-win for government and contractor

"Reaching New Dimensions in Performance Management"

Earned Value Management (EVM)
October 28, 1996

Sam Araki
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Lockheed Executive Commitment

LMMS

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"Our programs must continue to improve their performance management practices and skills and we must intensify efforts to eliminate activities that do not add value to the program management process."

Sam Araki

Lockheed Martin Missiles & Space

EVM Initiative

LMMS

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LMMS

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Dr. P. G. Kaminski,
Under Secretary of Defense,
(Acquisition and Technology)

EVM Task Force

LMMS

- LMMS and DCMC Exec. Mgmt

Steering Committee

LMMS Office of the President
DCMC Commander

- Business, DCMC, and Program Senior Mgmt

Exec. Task Force

Key Program Vice Presidents
Division Directors of Business Ops
DCMC Deputy Commander

- Cross Functional Team

Implementation Team

Task Force Manager
DCMC C/SCSC Focal Point
Program Reps
Process Reps
Information Systems Reps
Functional Reps

DCMC's Epectations

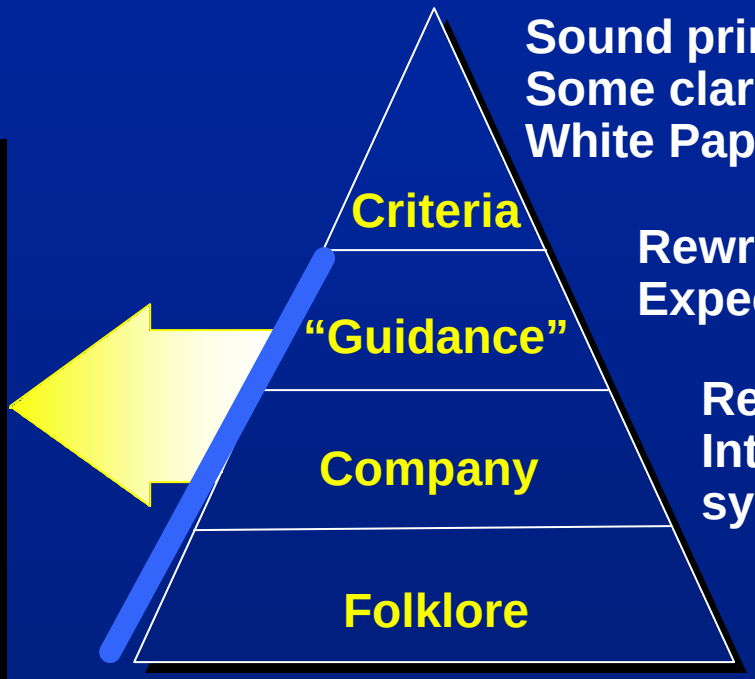
LMMS

- Government and company program manager ownership of EVM
- Standardization of EVM process across the enterprise
- Cost effective and meaningful joint surveillance
- Eliminate non-value-added activities associated with EVM

Perform a Requirement Analysis

LMMS

Top Down



Sound principles
Some clarification and redundancy
White Paper

Rewrite I/P
Expected outcome good

Rewrite for all programs
Integrate with other systems - WEB

Get the message out, retrain!!!

- Professional interpreters developed
- Lack of real "user" involvement
- Mistakes generated rules

Identify and remove impediments

Pilot Program

LMMS

Benchmark - IRIDIUM®

Pilot - Milstar

Best-Demonstrated Practices

Program Implementations

Process Change Flow

EVM Change Status

LMMS

Process Change Candidates

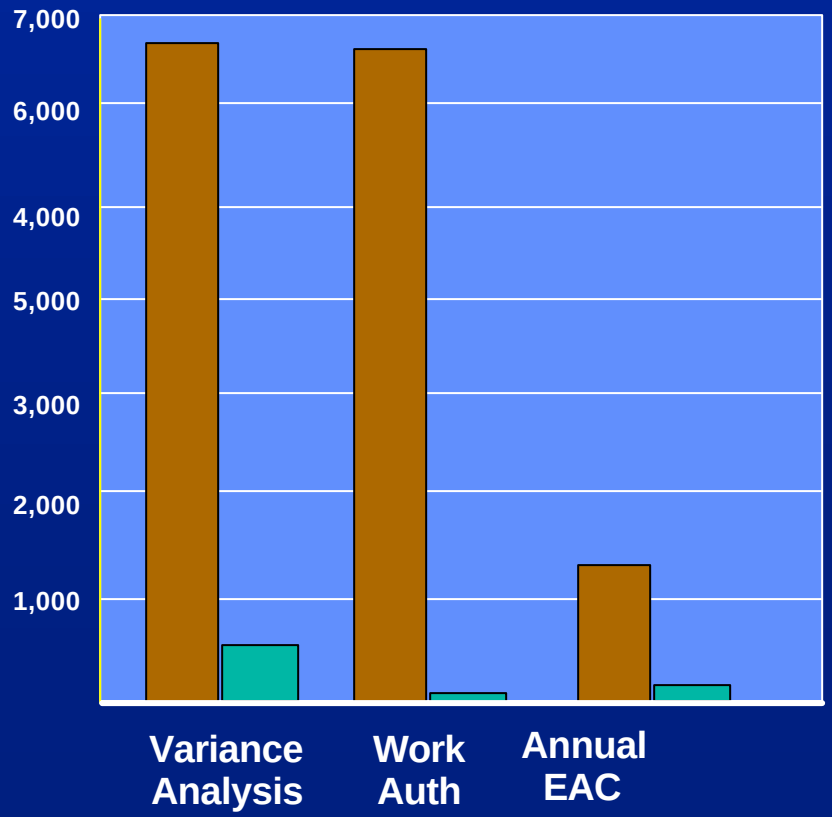
- EAC Triggers
- Variance Analysis
- Work Authorization
- Baseline Management
- Consistent OBS/WBS
- Level of CAM
- Business Support Role
- EV Technique
- Streamlined Material EV
- Use of Metrics
- Meetings/Information
- COTS
- Surveillance
- EDI

Process changes resulted from commercial benchmarking and best demonstrated practices

Eliminate Non-Value-Added Activity

LMMS

Annual estimated unique pieces of paper generated before and after process change for single program



Coopers & Lybrand Study

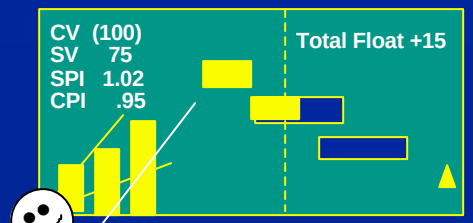
- C/SCSC 3rd-highest regulatory cost driver
- Two-thirds effort associated with pushing paper

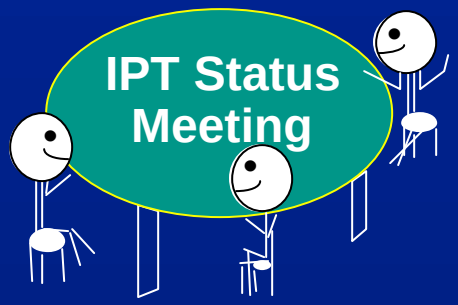
Use the "Real Info"

LMMS

LMMS Action

- Eliminate cost account variance reports
- Develop standard status review charts for teams with graphics
- Encourage customer participation on IPTs



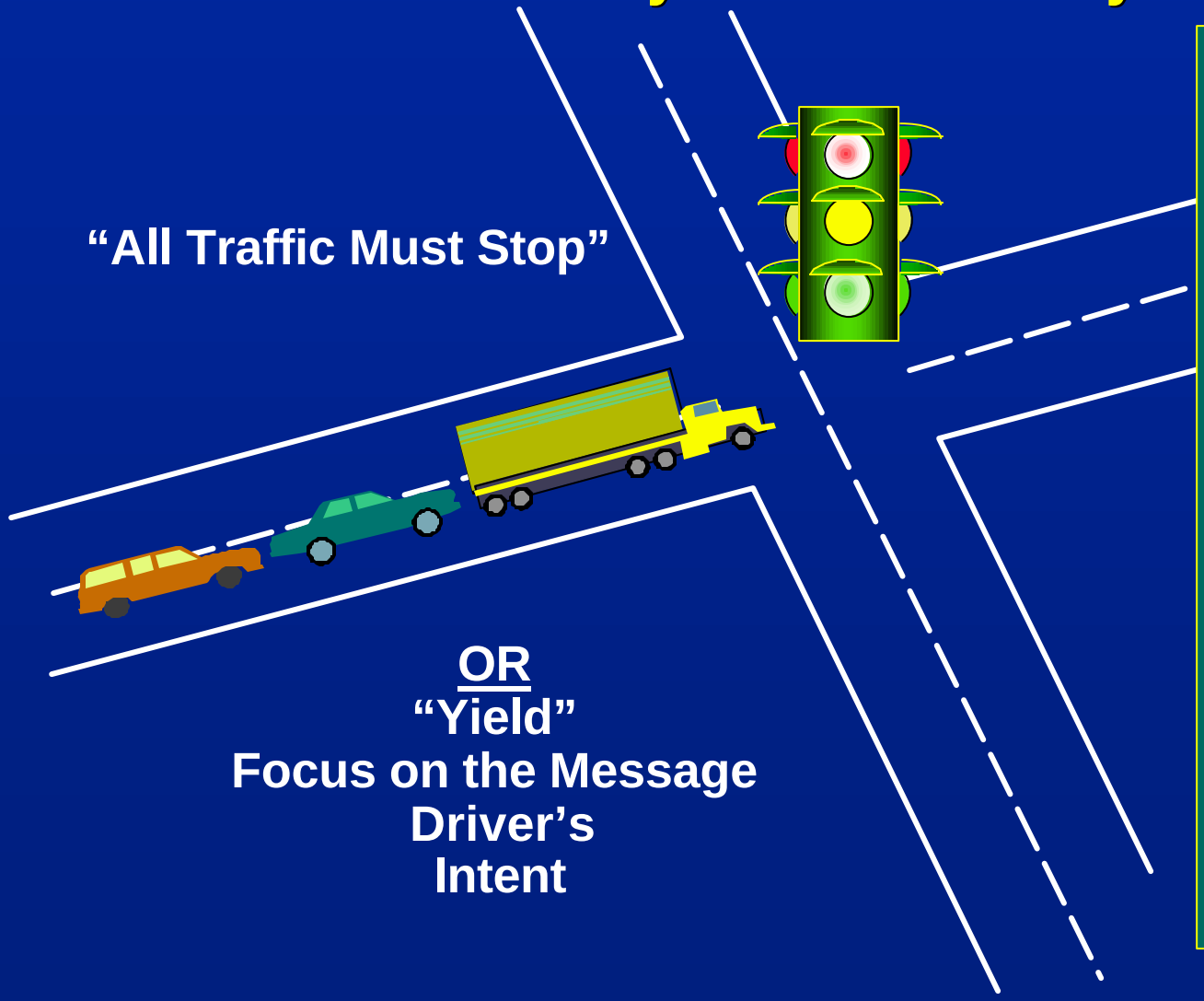


Capitalize on internal program management process

The Value of Judgment

LMMS

Substitute Analysis For Arbitrary Rules



"All Traffic Must Stop"

OR

"Yield"

Focus on the Message

Driver's Intent

LMMS Actions

- EAC triggers
  - SPI
  - CPI
  - TCPI
  - Risk
- Replace thresholds with significant indicators
  - Risk Areas
  - PDT Concerns
  - WBS
- Use analysis realtime

Develop a Quality Assurance Program

LMMS

"Contractor Ownership Includes Methods to Evaluate and Ensure the Quality of the EVM System"

Monitor

- **Product** →
  - Data reviewed by senior management
  - CPR data analysis
  - Independent EAC analysis
  - Program reviews
- **Process** →
  - Statistical process control approach
  - Use diagnostics and metrics
  - Program take responsibility for generation and response

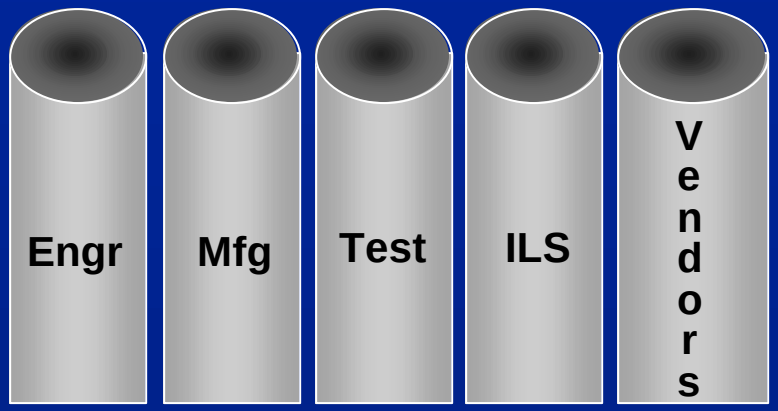
Key Features

- Non-interface
- Look for trends and significant discrepancies
- Replace CAM Interviews with "training" where indicators exist
- Focus includes value of information provided

Teamed for the Future

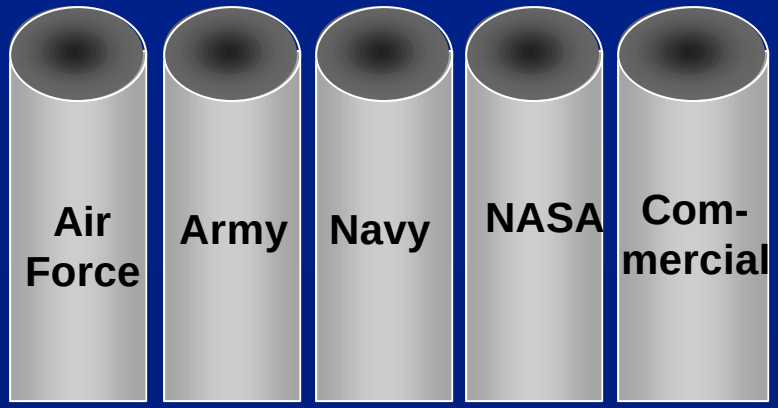
LMMS

Must Break Down Stovepipes for Common Processes



Integrated Product Teams

- Adopted Throughout LMMS
- Corporate Handbook

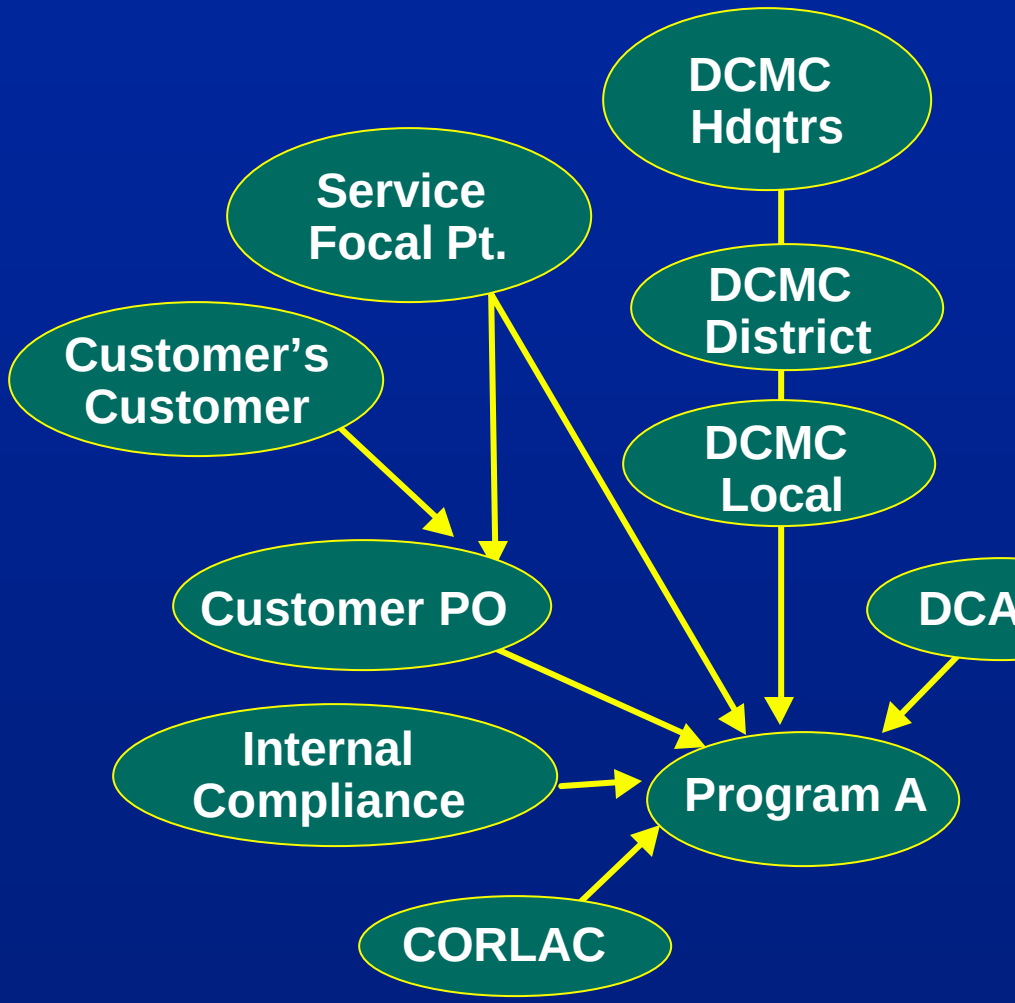


Single Processes

- Working w/ Gov't & Industry
- DCMC Key

Combine Surveillance Needs

LMMS



Teaming Approach to Ongoing Surveillance

Joint Surveillance Team

Customer PO

DCAA

DCMC Local

Internal Compliance

Program A

Benefits to the Government

LMMS

- **Public funds are at risk on large cost based contracts – a joint Program Office, DCMC, & LMMS process will exist to manage resources wisely**
- **Atmosphere created that capitalizes strengths of participants in surveillance process to develop programs with opportunity of success**
- **Environment fosters active and constructive participation of DCMC, DCAA, and Program Offices with LMMS to develop a sound earned value management strategy**

Potentially adversarial relationships transformed into productive partnership – renewed emphasis placed on importance of cross-functional teaming

Contractor Benefits

LMMS

- The integration of system surveillance, data surveillance and program surveillance
- Focus on quality and utility of reports
- Tailor processes to the way the contractor naturally manages
- Focus on prevention of management system deficiencies rather than “find and fix”
- Conduct government reviews only when surveillance and reporting indicate system integration and discipline deficiencies are distorting the presentation of program status

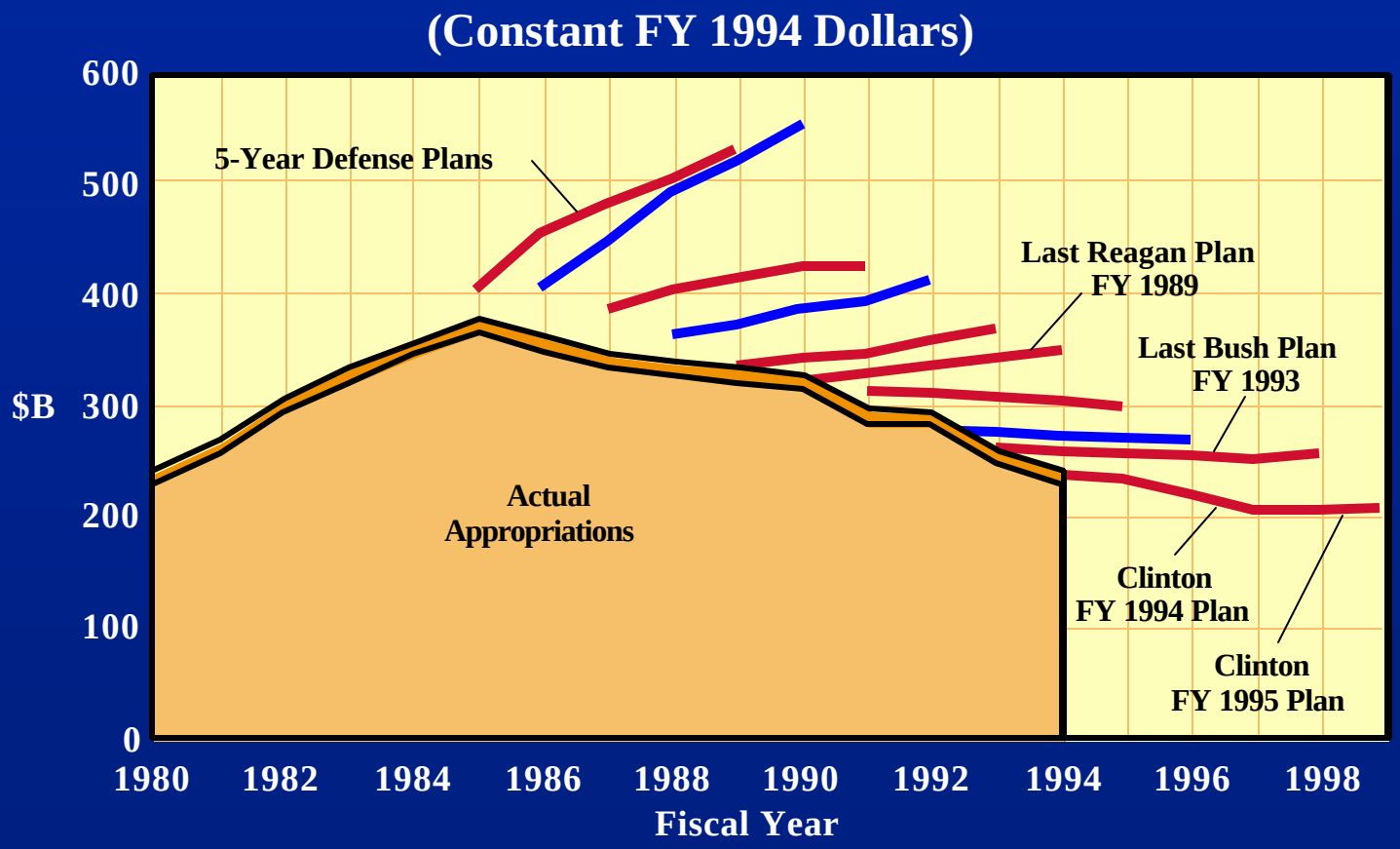
Joint Benefits

LMMS

- Early teaming yielded end-game success
- Developed mutual respect for government/contractor perspectives
- Both parties feel positive about eliminating non-value added activitiy
- Mutually able to attack real issues – avoided “Committee Fluff”

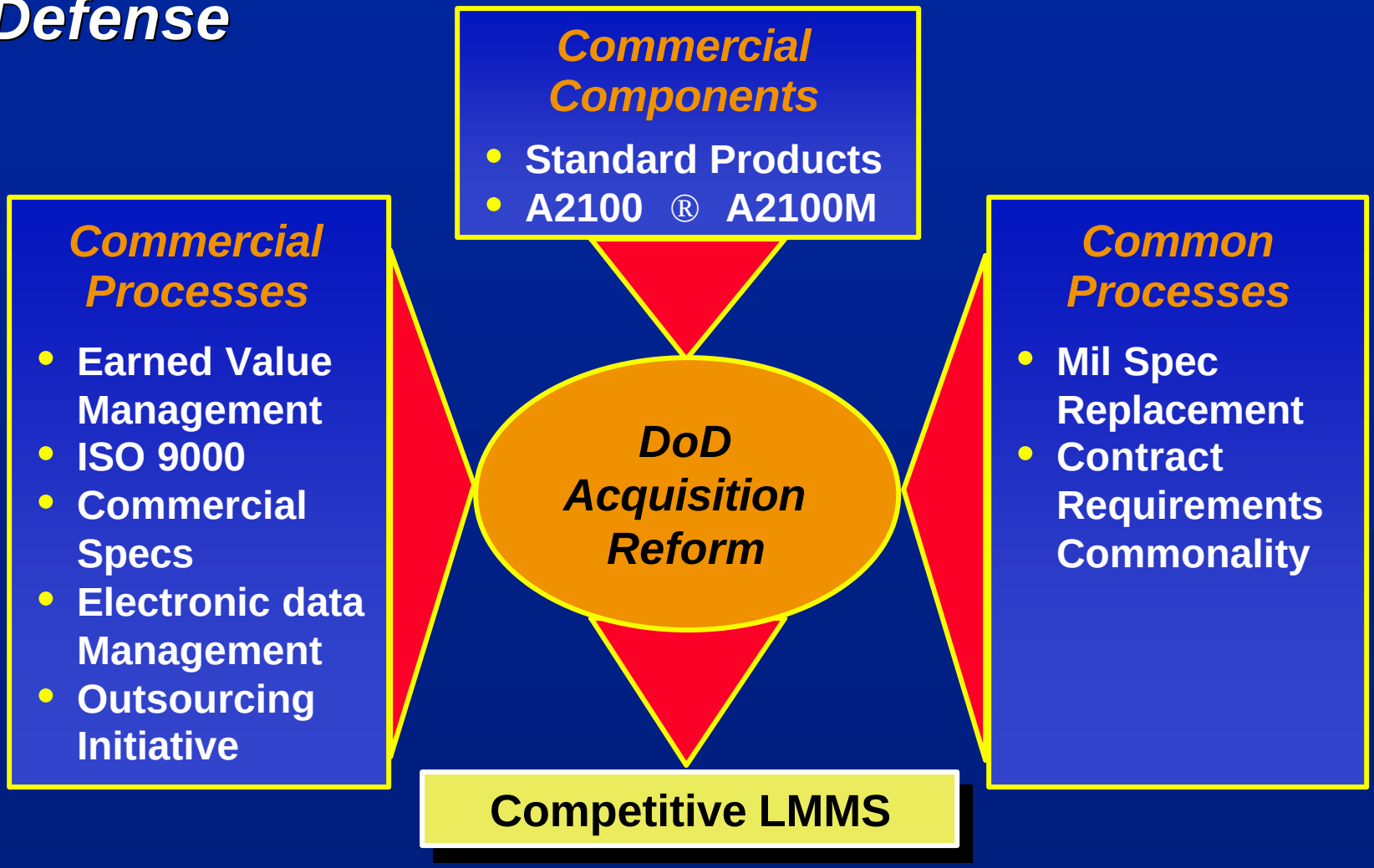
Gain of Company ownership is a win-win for government and contractor

Downsizing – A Reality of the New Environment



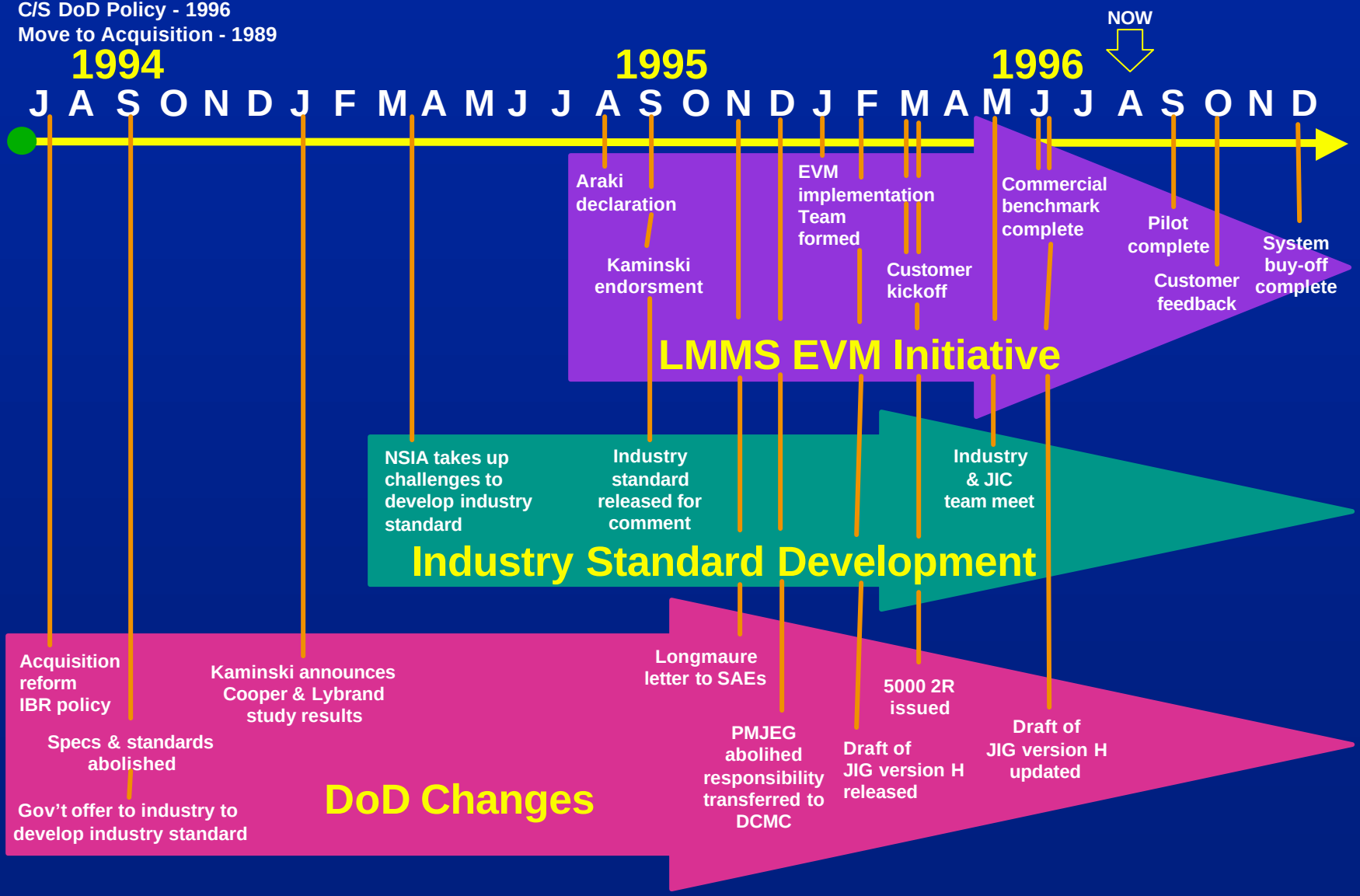
Source: DoD budget
Note: DoD is a nonprophet organization

Acquisition Reform Leads the Way to the Use of Commercial Practice and Products for Defense



Earned Value Time

Other Key Dates
C/S DoD Policy - 1996
Move to Acquisition - 1989



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Pilot Program

1991

Benchmark – IRIDIUM®

1993

Pilot – Milstar

Best-Demonstrated Practices

1995

Program Implementations

Process Change Flow

"The IRIDIUM® Challenge"

- Imposed a challenge to program team to create a paradigm shift to achieve shorter cycle time, reduced cost, and higher quality never achieved in the space business
- Empowered program team to take the best program management practices and eliminate all non-value-added policy, procedures, and work
- Applied special program "Skunkwork" approach (IPT) and Six Sigma quality
- Provided the best motivated people, facility equipment and tools to get the job done
- IRIDIUM® program manager chose to strip down the C/SCSC Earned Value Management tool to manage cost schedule performance and achieved excellent program management results
- Earned Value Management system developed on IRIDIUM® became the best commercial practice benchmark

What are the Minimum Requirements?

Premise:

- **If commercial business had no requirements, and**
- **If management believes they are successfully managing those programs, and**
- **If we are motivated to be cost effective,**
- **Then commercial business practices are the minimum requirements**

Would commercial business practices satisfy our government customers?

Pilot Program Approach

- Use Milstar program as a pilot
- Use IRIDIUM® program as a commercial benchmark
- Apply benchmark program practices and concepts to pilot
- Analyze results and cost effectiveness

Objective: To demonstrate a government program can be satisfied with current LMMS commercial business practices

Performed a Requirements Analysis

- Professional interpreters developed
- Lack of real "user" involvement
- Mistakes generated rules

Sound principles
Some clarification and redundancy
White Paper

Rewrite internal procedures
Expected outcome good

Rewrite for all programs
integrate with other systems – WEB

Get the message out, retrain!!!

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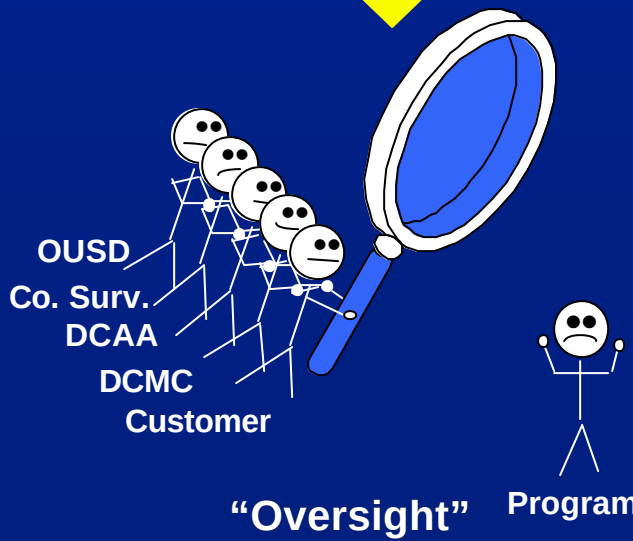
Culture Change

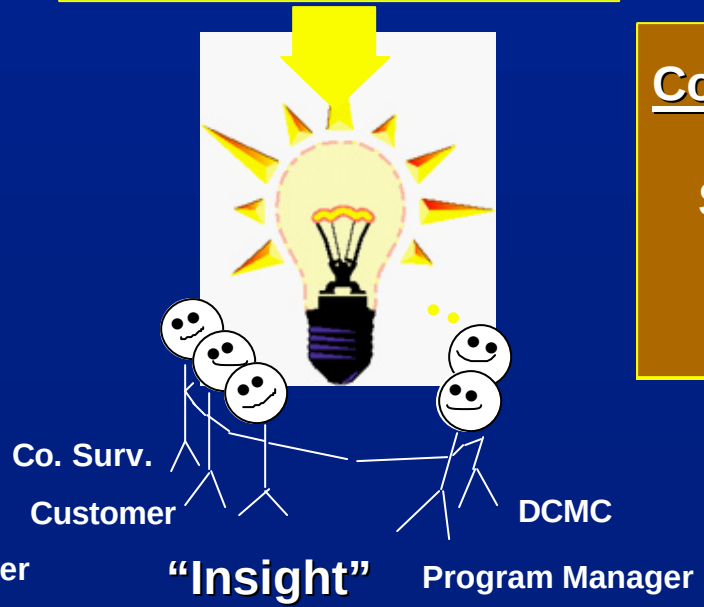
"The Biggest Challenge of All"

Refocus → **Training is Key**

Rigid Control + Slow Reaction



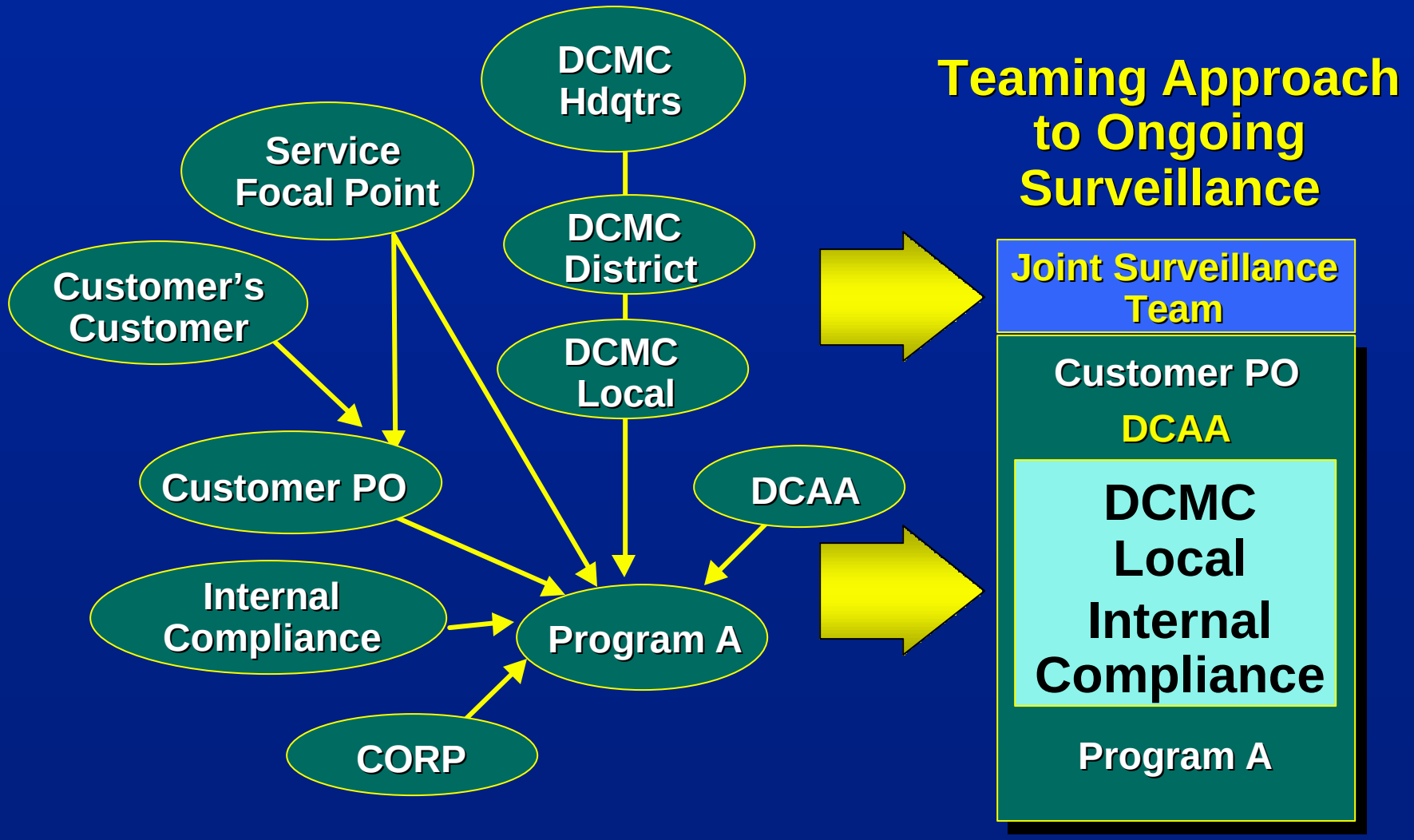
Flexible Control + Quick Reaction



Concept

SAR vs IBR

Combine Surveillance Needs



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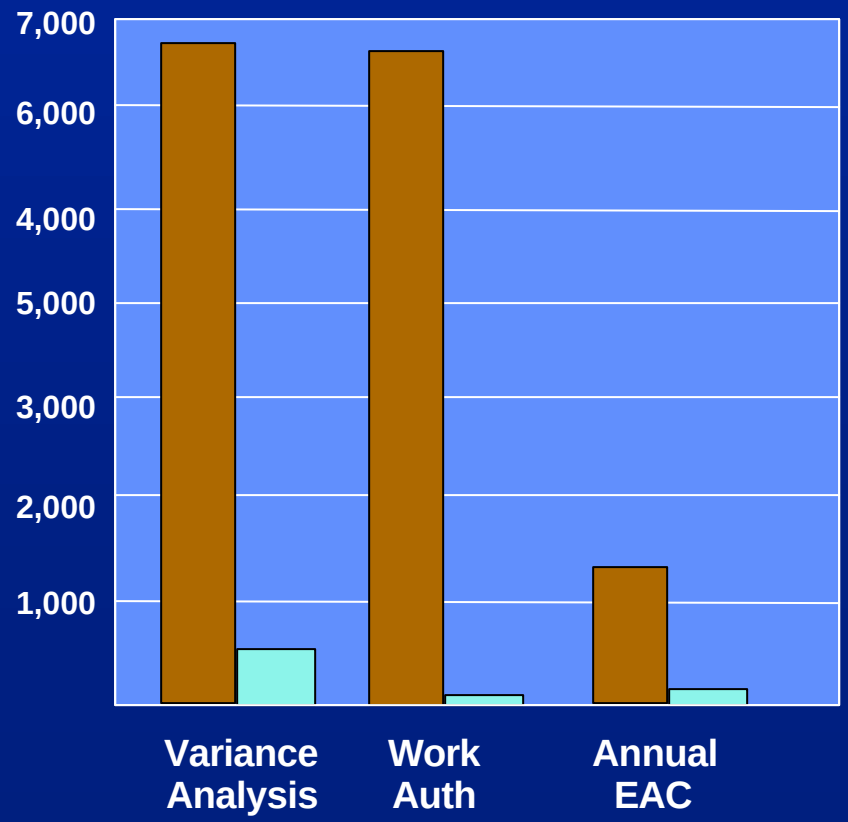

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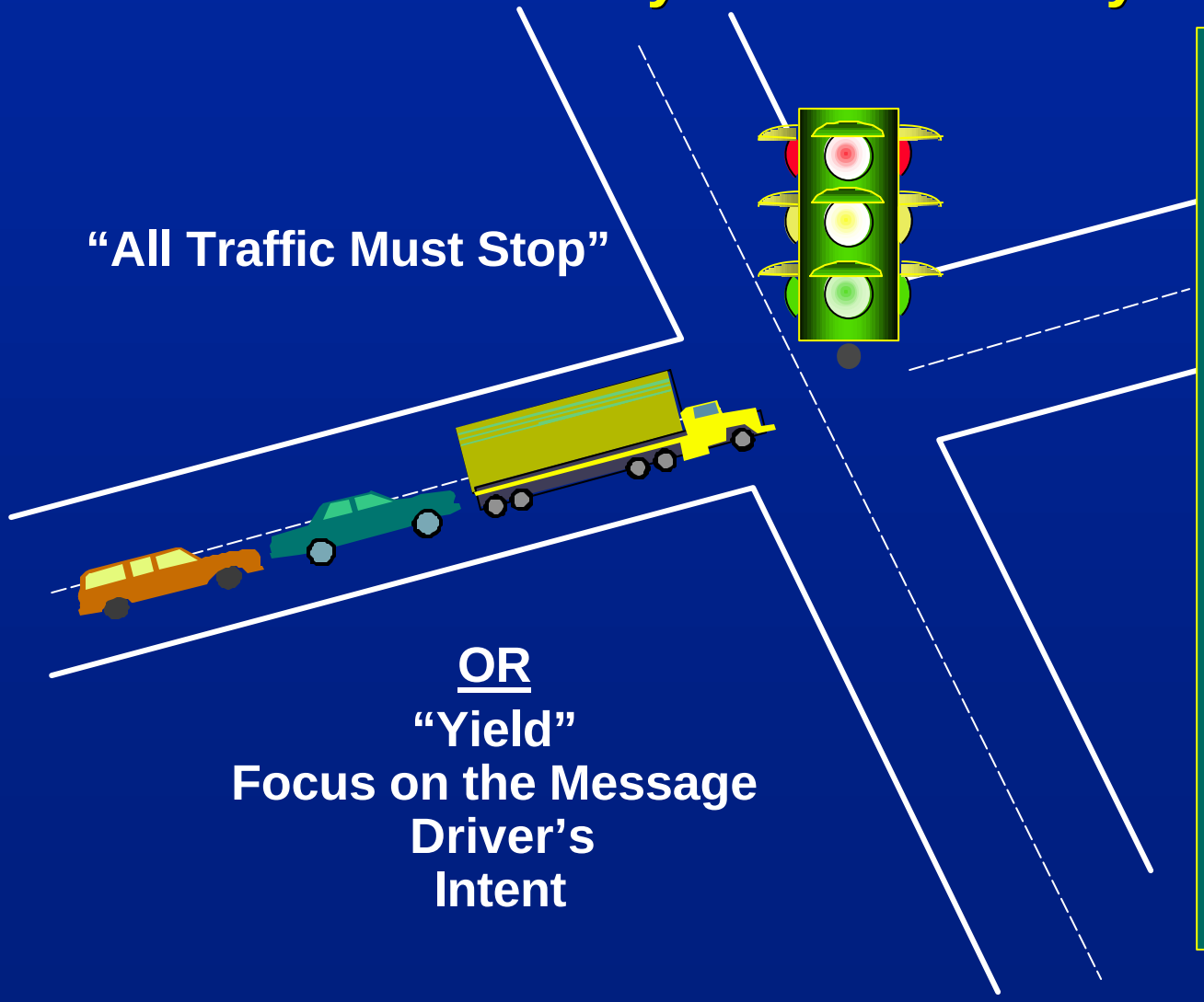

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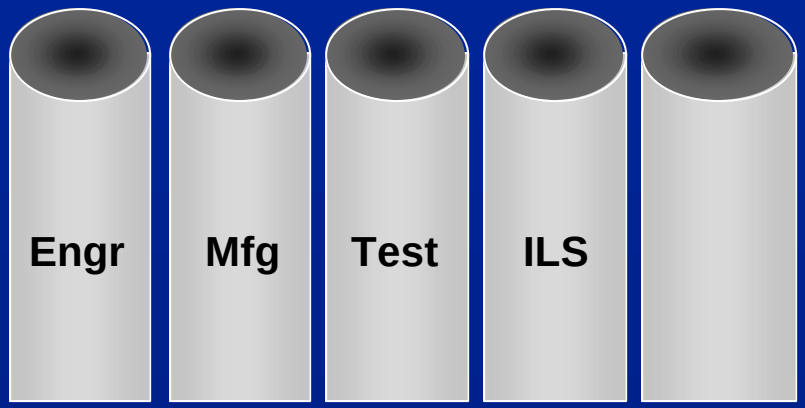
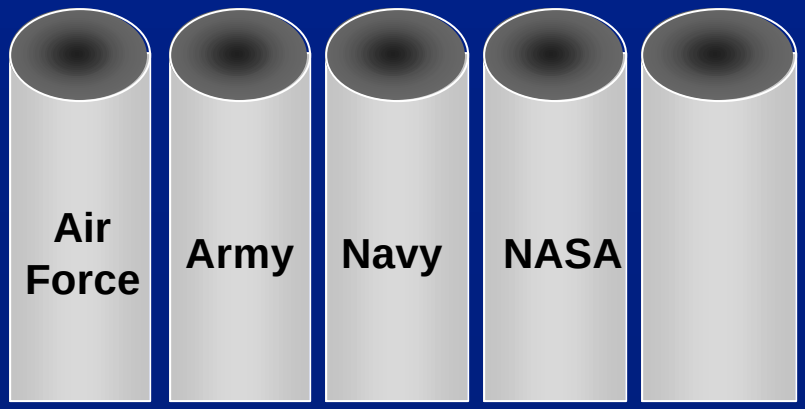


Vendors

Integrated Product Teams

- Adopted throughout LMMS with customers
- Corporate handbook



Commercial

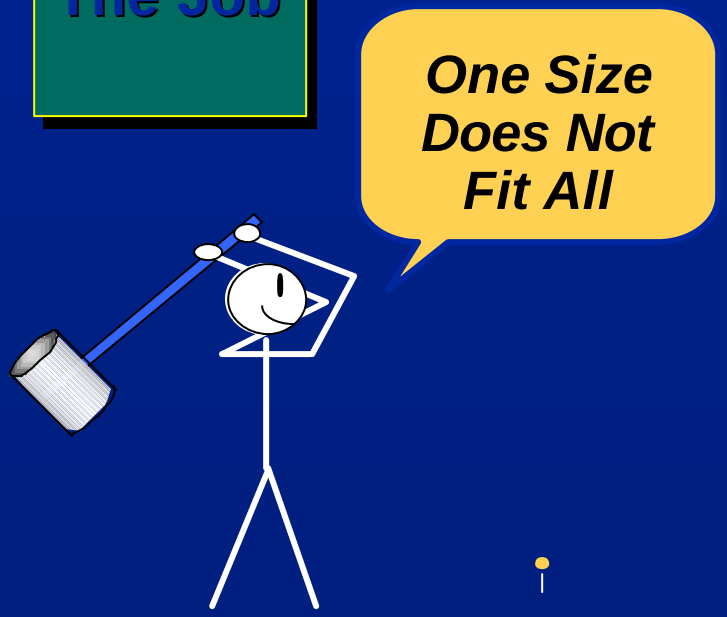
Single Processes

- Working with Government and Industry
- DCMC Key

Established Common Core Process

Tailor for Fit by Providing a Common Toolbox

Use The Right Tool For The Job



- **Phase out 3 of 4 major mainframe systems**
- **Adding 1 PC-based EVM tool**
- **Down selecting multiple schedule packages**
- **Adding key interfaces**
- **Focus on COT solutions**

Ask yourself WHY are your processes too "unique" to use COTS

Developed a Quality Assurance Program

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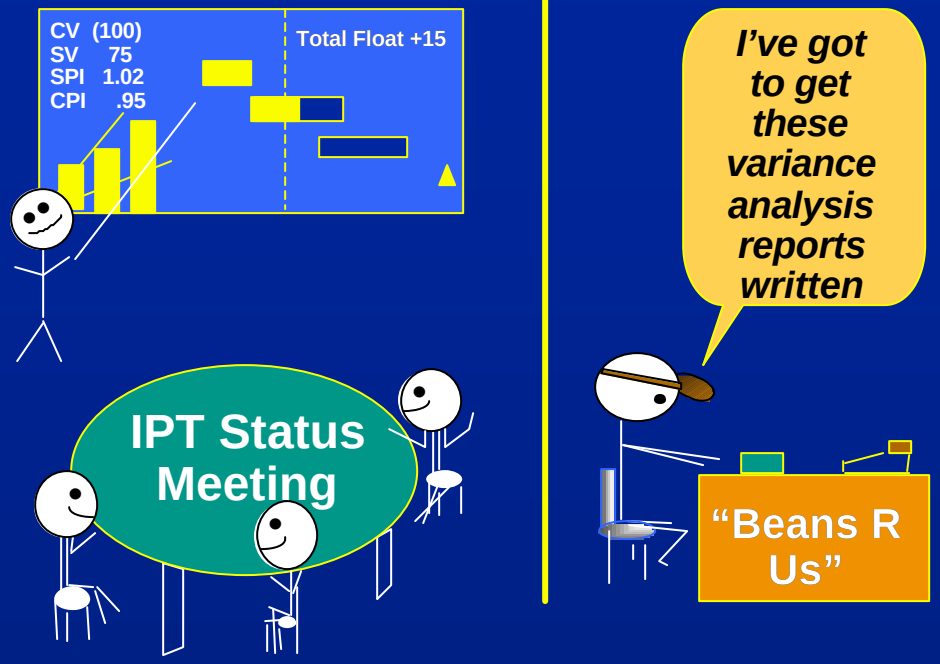

Capitalize on internal program management process

EVM Themes

- Acquisition reform has been an enabler
- Lockheed Martin Missiles and Space
  - —Customer/product diversity
  - —Consolidation managed as a program (EVM)
- EVM summary
  - —Enterprise commitment
  - —Get back-to-basics
  - —Company and program ownership
  - —Insight vs oversight
  - —Minimum requirements
  - —Metric quality assurance program

One-Year Enlightenment

- Precepts of EV are sound
  - Implementation was off-track
- Program definition and planning is key ingredient
- User friendly mechanism
  - Ultimate user involvement
  - COTS/people/process
- Institutionalize/standardize
  - EVM
    - DoD
    - Civil
    - Commercial
    - Internal jobs
- IPT's involvement
  - Realtime progress focus
  - Management focus not reporting
  - Insight vs oversight